STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:

CASE NO. 15654
ORDER NO. R-14392

APPLICATION OF MESQUITE SWD, INC. TO AMEND APPROVALS FOR SALT WATER DISPOSAL WELLS IN LEA AND EDDY COUNTIES, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This case came on for hearing at 8:15 a.m. on March 30, 2017, at Santa Fe, New Mexico, before Examiners William V. Jones, Phillip R. Goetze, and Michael A. McMillan.

NOW, on this 21st day of July, 2017, the Division Director, having considered the testimony, the record and the recommendations of Examiner Goetze,

FINDS THAT:

(1) Due public notice has been given, and the Division has jurisdiction of this case and of the subject matter.

(2) Mesquite SWD, Inc. (the "Applicant" or "Mesquite") seeks an order approving the modification of the tubing size for certain Underground Injection Control (UIC) Class II wells with approved administrative orders granting authority to inject. The following eight UIC Class II wells (the "Subject Wells") were referenced in the application:

(a) the Gnome East SWD Well No. 1 (API No. 30-015-43801); administrative order SWD-1610 issued January 13, 2016; located 1659 feet from the South line and 268 feet from the West line

(Unit L) in Section 26, Township 23 South, Range 30 East, NMPM, Eddy County, New Mexico;

(b) the Uber North SWD Well No. 1 (API No. 30-015-43805); administrative order SWD-1600 issued November 20, 2015; located 516 feet from the North line and 2355 feet from the East line (Unit B) in Section 15, Township 23 South, Range 31 East, NMPM, Eddy County, New Mexico;

(c) the Uber East SWD Well No. 1 (API No. 30-015-43806); administrative order SWD-1602 issued December 1, 2015; located 2345 feet from the South line and 660 feet from the East line (Unit I) in Section 24, Township 23 South, Range 31 East, NMPM, Eddy County, New Mexico;

(d) the Cypress SWD Well No. 1 (API No. 30-015-43867); administrative order SWD-1636 issued July 15, 2016; located 1590 feet from the South line and 165 feet from the West line (Unit L) in Section 34, Township 23 South, Range 29 East, NMPM, Eddy County, New Mexico;

(e) the Scott B SWD Well No. 1 (API No. 30-015-44061); administrative order SWD-1642 issued August 5, 2016; located 274 feet from the South line and 2165 feet from the West line (Unit N) in Section 23, Township 24 South, Range 28 East, NMPM, Eddy County, New Mexico;

(f) the Sand Dunes SWD Well No. 2 (API No. 30-015-44131); administrative order SWD-1667 issued February 23, 2017; located 2600 feet from the South line and 2500 feet from the West line (Unit K) in Section 8, Township 24 South, Range 31 East, NMPM, Eddy County, New Mexico;

(g) the Station SWD Well No. 1 (API No. 30-025-43473); administrative order SWD-1558 issued June 26, 2015; located 2625 feet from the North line and 2315 feet from the West line (Unit F) in Section 7, Township 24 South, Range 32 East, NMPM, Lea County, New Mexico; and

(h) the VL SWD Well No. 1 (API No. 30-015-Pending); administrative order SWD-1638 issued July 26, 2016; located 2142 feet from the South line and 249 feet from the East line (Unit I) in Section 14, Township 24 South, Range 28 East, NMPM, Eddy County, New Mexico.

(3) Applicant seeks a modification of the tubing size for each of the subject wells by amending the administrative orders to approve the use of 5½-inch EUE tubing with either the proposed or existing well construction of the Subject Wells. The Applicant stated the modification of the tubing size would result in a decrease of tubing friction while increasing the disposal capacities of the Subject Wells.

(4) On May 8, 2017, the Applicant provided to the Division the engineering report requested at hearing on March 30, 2017. The report was titled *MESQUITE SWD, Water Injection Modelling, White Paper Discussion,* which was prepared by the Ryder Scott Company.

(5) Applicant appeared at the hearing through counsel and presented engineering evidence to the effect that:

(a) the Applicant is an operator of multiple commercial disposal wells in New Mexico, including disposal wells with permitted injection intervals in the formations of Devonian and Silurian ages;

(b) the use of a larger 5½-inch tubing will decrease friction loss and provide for increased capacity for disposal of UIC Class II fluids into the deeper Devonian-Silurian formations;

(c) this additional capacity would reduce the overall financial obligations of the costs to construct new disposal wells in deeper permitted injection intervals;

(d) the installation of 5½-inch, 20 pound per foot (lb/ft) tubing (with 6.104-inch (OD) couplings) inside of 7⅝-inch (OD), 39 lb/ft casing (with a drift of 6.5 inches) provides a difference in diameter of approximately one inch or annular clearance of approximately one-half (½) inch between the inside the casing wall and the exterior of tubing body;

(e) the Applicant received approval for installation of 5½-inch EUE tubing within 7⅝-inch casing with specific conditions for the Vaca Draw Federal SWD No. 1 (API No. 30-025-23895; administrative order SWD-1571-B) through a Division e-mail dated January 12, 2017;

(f) as a result of the approval of the tubing increase for the Vaca Draw Federal SWD No. 1, the Applicant made individual applications to modify tubing sizes for numerous Devonian wells including the Subject Wells;

(g) the Applicant conducted a step-rate test (SRT) on the Vaca Draw Federal SWD No. 1 in February 2017, using 5½-inch tubing for the

test. The results of the SRT did not achieve a formation parting pressure with a maximum injection rate of approximately 29 barrels of water per minute (or equivalent to 41760 barrels of water per day);

(h) the Applicant's well service expert testified that external fishing procedures (overshot) could be used with 5½-inch tubing inside 7⅝-inch production casing where the tubing failure occurred along the tubing and not at the tubing collar;

(i) the Applicant's well service expert stated that along with the overshot methods, internal fishing procedures (spearing) have been successful in retrieving tubing with little difficulty at similar depths as the injection intervals for the Subject Wells;

(j) Applicant's well service expert further testified that a well could be properly plugged and abandoned even with a section of the larger tubing lost at depth that could not be retrieved by fishing;

(k) the engineering report demonstrated that with the proposed tubing size requested in the application, the Applicant could achieve a significant increase in disposal capacity ranging from 20 percent to 27 percent for each well;

(l) the Applicant provided notice of this application to "affected persons" by certified mail, return receipt requested. The list of affected persons was compiled from the parties notified in the Form C-108 applications for the Subject Wells.

(6) The Division requested the Bureau of Land Management (BLM) to either appear at the hearing or to provide a written response to this application that would be incorporated in the case file. The BLM provided the following written comments:

(a) the larger diameter tubing would increase the probability of improper installation and the loss of beneficial use of the well; and

(b) the enlarged capacity of disposal with larger tubing will increase formation pressures with concern for formation fracture pressures to be exceeded.

(7) Black River Water Management Company, LLC appeared through counsel at the hearing in support of the application. No other party appeared at the hearing, or otherwise opposed the granting of this application.

The Division concludes as follows:

(8) The Division is responsible for the orderly development and production of hydrocarbon resources including the authority to regulate the disposition of produced water as described in NMSA 1978, Section 70-2-12(B)(15). It is obligated to prevent waste, to protect correlative rights, and to protect human health and the environment.

(9) The Division supports the use of Devonian and Silurian formations as suitable disposal intervals to lessen the potential impact upon production of hydrocarbon resources and associated correlative rights that occur in shallower Permian formations. This trend is recognized by the current number of active Devonian UIC Class II disposal wells (137 wells) and the number of newly approved administrative orders for UIC Class II disposal wells with Devonian intervals (41 wells).

(10) Under NMSA 1978, Section 70-2-12, and, subsequently corroborated in Division Order No. R-12375 (Case No. 13511), UIC Class II wells are not subject to any spacing requirements as described in Division Rule 19.15.15 NMAC, and the Division is not statutorily obligated to protect the correlative rights of operators with regards to produced water disposal, unless such injection activities impair an operator's ability to produce hydrocarbon resources.

(11) Approval of this application for the use of the larger diameter tubing in UIC Class II wells with existing casing construction will establish a precedent by which the Division will have determined a "best management practice" for all future applications submitted under Rule 19.15.26.8 NMAC.

(12) Therefore, the Division must consider all possible negative impacts of multiple, high-volume disposal wells operating with increased volumes located in close proximity since the Division has no direct authority for the spacing of UIC Class II wells.

(13) Applicant provided performance data for injection intervals of individual wells disposing through larger diameter tubing into the Devonian formation, but did not offer any testimony or evidence on the potential impacts to similar Devonian intervals with multiple, high-volume disposal operations in close proximity.

(14) Additionally, the current application process for disposal orders includes two mandatory requirements: 1.) an area of review for penetrating wells within a one-half mile radius from the disposal well's surface location and 2.) the notification of affected persons based on a one-half mile radius from the disposal well's surface location. The Applicant offered no evidence or testimony that current review practices with the proposed increased disposal volumes are sufficient to protect correlative rights and ensure protection of fresh water sources.

(15) Currently, the Division does not have a procedure to address the induced-seismicity issue within its UIC Program, especially with regards to the potential impacts of increased injection volumes into reservoirs where assessment of faulting and

determination of lower confining layer was not considered, and must rely on current best management practices which utilizes the smaller sizes of tubing for injection into deep permitted intervals.

(16) Prior to establishing a best management practice for UIC Class II wells with regards to casing and tubing sizes, the Division considers it necessary to obtain further information and data to properly assess the impacts associated with increased tubing size and corresponding increased disposal volumes. To that end, the Division is proceeding with the formation of a Division/Industry workgroup to analyze current and future issues related to the necessity for additional disposal wells and injection capacity resulting from the horizontal drilling and production technology. Such issues include current injection into formations that may have negative impacts on hydrocarbon recovery, increased number of produced water disposal wells and possible spacing of high-capacity injection wells, possible increase in the ½-mile "Area of Review" due to increased injection volumes, and optimal mechanical configuration of produced water wells, which will include a detailed analysis of casing/tubing sizes. Consequently, the workgroup may make certain recommendations to the Division, which may ultimately endorse a wellbore configuration such as proposed by the Applicant in this case.

(17) Based on the evidence and testimony presented in this case, and the Division's goal of obtaining additional data prior to establishing a best management practice for wellbore configurations of this nature, the application in this case should be denied at this time.

IT IS THEREFORE ORDERED THAT:

(1) The application for approval of the use of 5½-inch EUE tubing, as proposed in the Subject Wells listed in Finding Paragraph (2), is hereby denied.

(2) The Division approves the use of 5½-inch tubing in the Subject Wells listed in Finding Paragraph (2) as part of a "tapered tubing design" where the 5½-inch tubing is installed within the larger-diameter, intermediate casing for the Subject Wells. The use of 5½-inch tubing for use as the deepest segment of tubing located within the final production casing (or liner), prior to the injection interval, is not approved.

(3) Jurisdiction of this case is retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

SEAL

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

David R. Catanach

DAVID R. CATANACH
Director